

<110> Delaney, Allen

<120> Cancer Associated Protein Kinases and their Uses

<130> SMAR-043

<150> 60/368,853

<151> 2002-03-28

<150> PCT/CA03/00409

<151> 2003-03-21

<160> 28

<170> FastSEQ for Windows Version 4.0

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Ile His Arg Asp Leu Lys Pro Lys Asn Phe Leu Val Val His His Asn
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Ile Lys Ile Thr Asp Phe Gly Phe Asp Thr Arg Phe Thr Val Gly Gln
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Gly	Val	Phe	Val	Asp	Ser	Tyr	Gly	Arg	Arg	Ser	Arg	Thr	Asp	Asp
			725					730					735	Leu
Lys	Trp	Ser	Arg	Leu	Pro	Leu	Ala	Phe	Ala	Tyr	Arg	Glu	Pro	Tyr
			740					745					750	Leu
Phe	Val	Thr	His	Phe	Asn	Ser	Leu	Glu	Val	Ile	Glu	Ile	Gln	Ala
		755				760						765		Arg
Ser	Ser	Ala	Gly	Thr	Pro	Ala	Arg	Ala	Tyr	Leu	Asp	Ile	Pro	Asn
	770					775					780			Pro
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785				790					795					800
Ser	Tyr	Gln	Asp	Lys	Leu	Arg	Val	Ile	Cys	Cys	Lys	Gly	Asn	Leu
			805					810					815	Val
Lys	Glu	Ser	Gly	Thr	Glu	His	His	Arg	Gly	Pro	Ser	Thr	Ser	Arg
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	835					840						845		Lys
Arg	Val	Ala	Ser	Ser	Pro	Ala	Pro	Pro	Glu	Gly	Pro	Ser	His	Pro
	850				855						860			Arg
Glu	Pro	Ser	Thr	Pro	His	Arg	Tyr	Arg	Glu	Gly	Arg	Thr	Glu	Leu
865				870					875					880
Arg	Asp	Lys	Ser	Pro	Gly	Arg	Pro	Leu	Glu	Arg	Glu	Lys	Ser	Pro
			885					890					895	Gly
Arg	Met	Leu	Ser	Thr	Arg	Arg	Glu	Arg	Ser	Pro	Gly	Arg	Leu	Phe
	900						905					910		Glu
Asp	Ser	Ser	Arg	Gly	Arg	Leu	Pro	Ala	Gly	Ala	Val	Arg	Thr	Pro
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<210> 13
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 <212> DNA
 <213> Homo sapiens

<220>
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 <223> STK6 kinase nucleotide

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 tcagcgggtc ttgtgtcctt caaattcttc ccagcgcgtt cctttgcaag cacaaaagct 360
 tgtctccagt cacaagccgg ttcagaatca gaagcagaag caattgcagg caaccagtgt 420
 acctcatcct gtctccaggc cactgaataa caccctaaaag agcaagcagc ccctgccatc 480

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<210> 14

<211> 402

<212> PRT

<213> Homo sapiens

<220>

<221> UNSURE

<222> (0)...(0)

<223> STK6 kinase polypeptide

<400> 14

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Cys Gln Asn Pro Leu Pro Val Asn Ser Gly Gln Ala Gln Arg Val Leu
 35          40          45
Cys Pro Ser Asn Ser Ser Gln Arg Val Pro Leu Gln Ala Gln Lys Leu
 50          55          60
Val Ser Ser His Lys Pro Val Gln Asn Gln Lys Gln Lys Gln Leu Gln
 65          70          75          80
Ala Thr Ser Val Pro His Pro Val Ser Arg Pro Leu Asn Asn Thr Gln
 85          90          95
Lys Ser Lys Gln Pro Leu Pro Ser His Leu Lys Ile Ile Leu Arg Arg
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Asn Trp His Gln Asn Arg Lys Met Lys Asn Gln Lys Glu Ala Val Ala
115          120          125
Leu Glu Asp Phe Glu Ile Gly Arg Pro Leu Gly Lys Gly Lys Phe Gly
130          135          140
Asn Val Tyr Leu Ala Arg Glu Lys Gln Ser Lys Phe Ile Leu Ala Leu
145          150          155          160
Lys Val Leu Phe Lys Ala Gln Leu Glu Lys Ala Gly Val Glu His Gln
165          170          175
Leu Arg Arg Glu Val Glu Ile Gln Ser His Leu Arg His Pro Asn Ile
180          185          190

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Leu Arg Leu Tyr Gly Thr Phe His Asp Ala Thr Arg Val Tyr Ile
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 210 215 220
 Ser Lys Phe Asp Glu Gln Arg Thr Ala Asn Leu Tyr Asn Arg Ile Ala
 225 230 235 240
 Asn Ala Leu Ser Tyr Cys His Ser Lys Arg Val Ile His Arg Asp Ile
 245 250 255
 Lys Pro Glu Asn Leu Leu Leu Gly Ser Ala Gly Glu Leu Lys Ile Ala
 260 265 270
 Asp Phe Gly Trp Ser Val His Ala Pro Ser Ser Arg Arg Thr Thr Leu
 275 280 285
 Cys Gly Thr Leu Asp Tyr Leu Pro Pro Glu Met Ile Glu Gly Arg Met
 290 295 300
 His Asp Glu Lys Val Asp Leu Trp Ser Leu Gly Val Leu Cys Tyr Glu
 305 310 315 320
 Phe Leu Val Gly Lys Pro Pro Phe Glu Ala Asn Thr Tyr Gln Glu Thr
 325 330 335
 Tyr Lys Arg Ile Ser Arg Val Glu Phe Thr Phe Pro Asp Phe Val Thr
 340 345 350
 Glu Gly Ala Arg Asp Leu Ile Ser Arg Leu Leu Lys His Asn Pro Ser
 355 360 365
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<210> 15

<211> 1552

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (0)...(0)

<223> PDK1 kinase polynucleotide

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 agccgcagct tcagctcgga ctcgggctcc agcccgcggt ccgagcgcgg cgttccgggc 240
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 atcagaaacc gacacaatga tgtcattccc acaatggccc aggggtgat tgaatacaag 600
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 caagtgggtt atgtaccatc ccatctctat cacatggtgt ttgaactttt caagaatgca 960
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<213> Homo sapiens

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<223> PDK1 kinase polypeptide

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35          40          45
Tyr Ala Arg Phe Ser Pro Ser Pro Leu Ser Met Lys Gln Phe Leu Asp
50          55          60
Phe Gly Ser Val Asn Ala Cys Glu Lys Thr Ser Phe Met Phe Leu Arg
65          70          75          80
Gln Glu Leu Pro Val Arg Leu Ala Asn Ile Met Lys Glu Ile Ser Leu
85          90          95
Leu Pro Asp Asn Leu Leu Arg Thr Pro Ser Val Gln Leu Val Gln Ser
100         105         110
Trp Tyr Ile Gln Ser Leu Gln Glu Leu Leu Asp Phe Lys Asp Lys Ser
115         120         125
Ala Glu Asp Ala Lys Ala Ile Tyr Asp Phe Thr Asp Thr Val Ile Arg
130         135         140
Ile Arg Asn Arg His Asn Asp Val Ile Pro Thr Met Ala Gln Gly Val
145         150         155         160
Ile Glu Tyr Lys Glu Ser Phe Gly Val Asp Pro Val Thr Ser Gln Asn
165         170         175
Val Gln Tyr Phe Leu Asp Arg Phe Tyr Met Ser Arg Ile Ser Ile Arg
180         185         190
Met Leu Leu Asn Gln His Ser Leu Leu Phe Gly Gly Lys Gly Lys Gly
195         200         205
Ser Pro Ser His Arg Lys His Ile Gly Ser Ile Asn Pro Asn Cys Asn
210         215         220
Val Leu Glu Val Ile Lys Asp Gly Tyr Glu Asn Ala Arg Arg Leu Cys
225         230         235         240
Asp Leu Tyr Tyr Ile Asn Ser Pro Glu Leu Glu Leu Glu Leu Asn
245         250         255
Ala Lys Ser Pro Gly Gln Pro Ile Gln Val Val Tyr Val Pro Ser His
260         265         270
Leu Tyr His Met Val Phe Glu Leu Phe Lys Asn Ala Met Arg Ala Thr
275         280         285
Met Glu His His Ala Asn Arg Gly Val Tyr Pro Pro Ile Gln Val His
290         295         300
Val Thr Leu Gly Asn Glu Asp Leu Thr Val Lys Met Ser Asp Arg Gly
305         310         315         320
Gly Gly Val Pro Leu Arg Lys Ile Asp Arg Leu Phe Asn Tyr Met Tyr
325         330         335
Ser Thr Ala Pro Arg Pro Arg Val Glu Thr Ser Arg Ala Val Pro Leu
340         345         350
Ala Gly Phe Gly Tyr Gly Leu Pro Ile Ser Arg Leu Tyr Ala Gln Tyr
355         360         365

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Phe Gln Gly Asp Leu I Leu Tyr Ser Leu Glu Gly Tyr Gly T Asp
 370 375 380
 Ala Val Ile Tyr Ile Lys Ala Leu Ser Thr Asp Ser Ile Glu Arg Leu
 385 390 395 400
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 Phe Arg Ser Ala
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<210> 17
 <211> 1776
 <212> DNA
 <213> Homo sapiens

<220>
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 <223> PAK4 kinase nucleotide

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 aagtcttcca gggaggggtc aggggggtccc caggagtccct cccgggacaa acgccccctc 540
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 <211> 591
 <212> PRT
 <213> Homo sapiens

<220>
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 <222> (0)...(0)
 <223> PAK4 kinase polypeptide

<400> 18

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Ala	Leu	Thr	Leu	Leu	Leu	Asp	Glu	Phe	Glu	Asn	Met	Ser	Val	Thr	Arg
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Leu	Asp	Asn	Phe	Ile	Lys	Ile	Gly	Glu	Gly	Ser	Thr	Gly	Ile	Val	Cys
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Ile	Ala	Thr	Val	Arg	Ser	Ser	Gly	Lys	Leu	Val	Ala	Val	Lys	Lys	Met
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Gly	Ala	Leu	Thr	Asp	Ile	Val	Thr	His	Thr	Arg	Met	Asn	Glu	Glu	Gln
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Thr	His	Asp	Gly	Arg	Val	Lys	Leu	Ser	Asp	Phe	Gly	Phe	Cys	Ala	Gln
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<211> 6383

<212> DNA

<213> Homo sapiens

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<221> misc_feature

<222> (0)...(0)

<223> ITK kinase nucleotide

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635														
640														

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 <213> Homo sapiens

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<212> PRT
<213> Homo sapiens

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<223> PRKCM kinase polypeptide

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Pro Gly Pro Ala Pro Phe Leu Ala Pro Val Ala Ala Pro Val Gly Gly
35          40          45
Ile Ser Phe His Leu Gln Ile Gly Leu Ser Arg Glu Pro Val Leu Leu
50          55          60
Leu Gln Asp Ser Ser Gly Asp Tyr Ser Leu Ala His Val Arg Glu Met
65          70          75          80
Ala Cys Ser Ile Val Asp Gln Lys Phe Pro Glu Cys Gly Phe Tyr Gly
85          90          95
Met Tyr Asp Lys Ile Leu Leu Phe Arg His Asp Pro Thr Ser Glu Asn
100         105         110
Ile Leu Gln Leu Val Lys Ala Ala Ser Asp Ile Gln Glu Gly Asp Leu
115         120         125
Ile Glu Val Val Leu Ser Arg Ser Ala Thr Phe Glu Asp Phe Gln Ile
130         135         140
Arg Pro His Ala Leu Phe Val His Ser Tyr Arg Ala Pro Ala Phe Cys
145         150         155         160
Asp His Cys Gly Glu Met Leu Trp Gly Leu Val Arg Gln Gly Leu Lys
165         170         175
Cys Glu Gly Cys Gly Leu Asn Tyr His Lys Arg Cys Ala Phe Lys Ile
180         185         190
Pro Asn Asn Cys Ser Gly Val Arg Arg Arg Arg Leu Ser Asn Val Ser
195         200         205
Leu Thr Gly Val Ser Thr Ile Arg Thr Ser Ser Ala Glu Leu Ser Thr
210         215         220
Ser Ala Pro Asp Glu Pro Leu Leu Gln Lys Ser Pro Ser Glu Ser Phe
225         230         235         240

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Ile	Gly	Arg	Glu	Lys	Asn	Ser	Asn	Ser	Gln	Ser	Tyr	Ile	Gly	Pro	245	250	
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Phe	Val	Ile	His	Ser	Tyr	Thr	Arg	Pro	Thr	Val	Cys	Gln	Tyr	Cys	Lys	275	280
Lys	Leu	Leu	Lys	Gly	Leu	Phe	Arg	Gln	Gly	Leu	Gln	Cys	Lys	Asp	Cys	290	295
Arg	Phe	Asn	Cys	His	Lys	Arg	Cys	Ala	Pro	Lys	Val	Pro	Asn	Asn	Cys	305	310
Leu	Gly	Glu	Val	Thr	Ile	Asn	Gly	Asp	Leu	Leu	Ser	Pro	Gly	Ala	Glu	325	330
Ser	Asp	Val	Val	Met	Glu	Glu	Gly	Ser	Asp	Asp	Asn	Asp	Ser	Glu	Arg	340	345
Asn	Ser	Gly	Leu	Met	Asp	Asp	Met	Glu	Glu	Ala	Met	Val	Gln	Asp	Ala	355	360
Glu	Met	Ala	Met	Ala	Glu	Cys	Gln	Asn	Asp	Ser	Gly	Glu	Met	Gln	Asp	370	375
Pro	Asp	Pro	Asp	His	Glu	Asp	Ala	Asn	Arg	Thr	Ile	Ser	Pro	Ser	Thr	385	390
Ser	Asn	Asn	Ile	Pro	Leu	Met	Arg	Val	Val	Gln	Ser	Val	Lys	His	Thr	405	410
Lys	Arg	Lys	Ser	Ser	Thr	Val	Met	Lys	Glu	Gly	Trp	Met	Val	His	Tyr	420	425
Thr	Ser	Lys	Asp	Thr	Leu	Arg	Lys	Arg	His	Tyr	Trp	Arg	Leu	Asp	Ser	435	440
Lys	Cys	Ile	Thr	Leu	Phe	Gln	Asn	Asp	Thr	Gly	Ser	Arg	Tyr	Tyr	Lys	450	455
Glu	Ile	Pro	Leu	Ser	Glu	Ile	Leu	Ser	Leu	Glu	Pro	Val	Lys	Thr	Ser	465	470
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Ala	Asn	Val	Val	Tyr	Tyr	Val	Gly	Glu	Asn	Val	Val	Asn	Pro	Ser	Ser	500	505
Pro	Ser	Pro	Asn	Asn	Ser	Val	Leu	Thr	Ser	Gly	Val	Gly	Ala	Asp	Val	515	520
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Pro	Lys	Gly	Ser	Ser	Val	Gly	Thr	Gly	Thr	Asn	Leu	His	Arg	Asp	Ile	545	550
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Ser	Gln	Leu	Arg	Asn	Glu	Val	Ala	Ile	Leu	Gln	Asn	Leu	His	His	Pro	625	630
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Gln	Ile	Leu	Val	Ala	Leu	Arg	His	Leu	His	Phe	Lys	Asn	Ile	Val	His	690	695
Cys	Asp	Leu	Lys	Pro	Glu	Asn	Val	Leu	Leu	Ala	Ser	Ala	Asp	Pro	Phe	705	710
Pro	Gln	Val	Lys	Leu	Cys	Asp	Phe	Gly	Phe	Ala	Arg	Ile	Ile	Gly	Glu	725	730

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 755 760 765
 Val Gly Val Ile Ile Tyr Val Ser Leu Ser Gly Thr Phe Pro Phe Asn
 770 775 780
 Glu Asp Glu Asp Ile His Asp Gln Ile Gln Asn Ala Ala Phe Met Tyr
 785 790 795 800
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 Asn Asn Leu Leu Gln Val Lys Met Arg Lys Arg Tyr Ser Val Asp Lys
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 835 840 845
 Arg Glu Leu Glu Cys Lys Ile Gly Glu Arg Tyr Ile Thr His Glu Ser
 850 855 860
 Asp Asp Leu Arg Trp Glu Lys Tyr Ala Gly Glu Gln Arg Leu Gln Tyr
 865 870 875 880
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 <223> NEK6 kinase polypeptide

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 Ala Leu Lys Lys Val Gln Ile Phe Glu Met Met Asp Ala Lys Ala Arg
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 Asn Ile Ile Lys Tyr Leu Asp Ser Phe Ile Glu Asp Asn Glu Leu Asn
 100 105 110
 Ile Val Leu Glu Leu Ala Asp Ala Gly Asp Leu Ser Gln Met Ile Lys
 115 120 125
 Tyr Phe Lys Lys Gln Lys Arg Leu Ile Pro Glu Arg Thr Val Trp Lys
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 Tyr Phe Val Gln Leu Cys Ser Ala Val Glu His Met His Ser Arg Arg
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 Val Met His Arg Asp Ile Lys Pro Ala Asn Val Phe Ile Thr Ala Thr
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 Gly Val Val Lys Leu Gly Asp Leu Gly Leu Gly Arg Phe Phe Ser Ser
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 Glu Thr Thr Ala Ala His Ser Leu Val Gly Thr Pro Tyr Tyr Met Ser
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 Pro Glu Arg Ile His Glu Asn Gly Tyr Asn Phe Lys Ser Asp Ile Trp
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 Cys Asp Tyr Pro Pro Leu Pro Gly Glu His Tyr Ser Glu Lys Leu Arg
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 <223> PDPK1 kinase polynucleotide

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Thr Glu Ser Ser Thr Pro Pro Gly Ile Pro Gly Gly Ser Arg Gln Gly
35          40          45
Pro Ala Met Asp Gly Thr Ala Ala Glu Pro Arg Pro Gly Ala Gly Ser
50          55          60
Leu Gln His Ala Gln Pro Pro Pro Gln Pro Arg Lys Lys Arg Pro Glu
65          70          75          80
Asp Phe Lys Phe Gly Lys Ile Leu Gly Glu Gly Ser Phe Ser Thr Val
85          90          95
Val Leu Ala Arg Glu Leu Ala Thr Ser Arg Glu Tyr Ala Ile Lys Ile
100         105         110
Leu Glu Lys Arg His Ile Ile Lys Glu Asn Lys Val Pro Tyr Val Thr
115         120         125
Arg Glu Arg Asp Val Met Ser Arg Leu Asp His Pro Phe Phe Val Lys
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180	185	190					
Leu Glu Tyr Leu His Gly Lys Gly Ile Ile His Arg Asp Leu Lys Pro							
195	200	205					
Glu Asn Ile Leu Leu Asn Glu Asp Met His Ile Gln Ile Thr Asp Phe							
210	215	220					
Gly Thr Ala Lys Val Leu Ser Pro Glu Ser Lys Gln Ala Arg Ala Asn							
225	230	235					240
Ser Phe Val Gly Thr Ala Gln Tyr Val Ser Pro Glu Leu Leu Thr Glu							
245	250	255					
Lys Ser Ala Cys Lys Ser Ser Asp Leu Trp Ala Leu Gly Cys Ile Ile							
260	265	270					
Tyr Gln Leu Val Ala Gly Leu Pro Pro Phe Arg Ala Gly Asn Glu Tyr							
275	280	285					
Leu Ile Phe Gln Lys Ile Ile Lys Leu Glu Tyr Asp Phe Pro Glu Lys							
290	295	300					
Phe Phe Pro Lys Ala Arg Asp Leu Val Glu Lys Leu Leu Val Leu Asp							
305	310	315					320
Ala Thr Lys Arg Leu Gly Cys Glu Glu Met Glu Gly Tyr Gly Pro Leu							
325	330	335					
Lys Ala His Pro Phe Phe Glu Ser Val Thr Trp Glu Asn Leu His Gln							
340	345	350					
Gln Thr Pro Pro Lys Leu Thr Ala Tyr Leu Pro Ala Met Ser Glu Asp							
355	360	365					
Asp Glu Asp Cys Tyr Gly Asn Tyr Asp Asn Leu Leu Ser Gln Phe Gly							
370	375	380					
Cys Met Gln Val Ser Ser Ser Ser Ser His Ser Leu Ser Ala Ser							
385	390	395					400
Asp Thr Gly Leu Pro Gln Arg Ser Gly Ser Asn Ile Glu Gln Tyr Ile							
405	410	415					
His Asp Leu Asp Ser Asn Ser Phe Glu Leu Asp Leu Gln Phe Ser Glu							
420	425	430					
Asp Glu Lys Arg Leu Leu Leu Glu Lys Gln Ala Gly Gly Asn Pro Trp							
435	440	445					
His Gln Phe Val Glu Asn Asn Leu Ile Leu Lys Met Gly Pro Val Asp							
450	455	460					
Lys Arg Lys Gly Leu Phe Ala Arg Arg Arg Gln Leu Leu Leu Thr Glu							
465	470	475					480
Gly Pro His Leu Tyr Tyr Val Asp Pro Val Asn Lys Val Leu Lys Gly							
485	490	495					
Glu Ile Pro Trp Ser Gln Glu Leu Arg Pro Glu Ala Lys Asn Phe Lys							
500	505	510					
Thr Phe Phe Val His Thr Pro Asn Arg Thr Tyr Tyr Leu Met Asp Pro							
515	520	525					
Ser Gly Asn Ala His Lys Trp Cys Arg Lys Ile Gln Glu Val Trp Arg							
530	535	540					
Gln Arg Tyr Gln Ser His Pro Asp Ala Ala Val Gln							
545	550	555					

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